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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,072	11/21/2003	Mali Gong	62888.00001	2272
30256	7590	10/07/2005	EXAMINER	
SQUIRE, SANDERS & DEMPSEY L.L.P			UNELUS, ERNEST	
600 HANSEN WAY			ART UNIT	PAPER NUMBER
PALO ALTO, CA 94304-1043			2828	

DATE MAILED: 10/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EX

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/719,072		GONG ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Ernest Unelus		2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/21/2003</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10, and 15-18, are rejected under 35 U.S.C. 102(b) as being anticipated by Byren et al. (5,974,061).

With respect to claims 1 and 15, Byren discloses an edge-pumping method for slab laser comprising: directing a pump light (32) into a laser slab through slab coners of said laser slab; propagating the pump light within the laser slab by total internal reflection (TIR) (col. 4, lines 55-59); and substantially absorbing the pump light during propagating (col. 4, lines 6-7) (see figure 1).

With respect to claims 2, 10 and 16, Byren discloses the corner faces of said laser slab are coated for high transmission for the wavelength of the pump light, and lateral faces of said slab are coated for high reflection for the wavelength of the pump light (col. 3, lines 32-67 and col. 4, lines 29-35).

With respect to claims 3 and 17, Byren discloses a laser light (32) propagates inside the laser slab between two TIR faces in a zigzag optical path (see figure 1).

With respect to claims 4 and 18, Byron discloses the step of absorbing has a high absorption efficiency (col. 4, lines 8-9).

With respect to claim 5, Byren discloses the step of absorbing include multiple absorptions (col. 4, lines 1-14).

With respect to claim 6, Byren discloses a solid-state laser gain module comprising: a laser slab (10) formed by a solid state laser material, said laser slab including an input receiving an input beam (32), an output outputting an output beam and slab corners with corner faces; and a pump source providing a pump light; wherein said pump light is directed into said laser slab through said slab corners of said laser slab, propagated within said laser slab by total internal reflection (TIR), and substantially absorbed during propagation; and wherein said laser slab outputs an amplified laser beam (col. 4, lines 1-67).

With respect to claim 7, Byren discloses, a laser gain module with said corner faces is four (see figure 1).

With respect to claim 8, Byren discloses laser slab with a circumambient portion and a central portion (see figure 2), said circumambient portion including an un-doped

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host area, said center portion including one or more doped host areas (col. 4, lines 15-39)

With respect to claim 9, Byren disclose a cross section of said central portion is rectangular, square or circular (see figure 2).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byren et al. (5,974,061) in view of Perry et al. (6,865,213).

With respect to claims 11 and 12, Byren discloses an edge pumping laser cavity apparatus without specifically indicating the output beam with the input beam forming an angle with each other and where two mirrors are placed at another side of the laser slab. An edge pumping laser cavity apparatus with the output beam with the input beam forming an angle with each other and where two mirrors are placed at another side of the laser slab is well taught by Perry (see figure 9). It would have been obvious to one of ordinary skill in the art to have the laser beam directed to the two mirrors

placed at the end of the slab, simple, to minimize any amplitude distortion of the laser beam as it passes through the crystal.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byren et al. (5,974,061) in view of Zhang (6,873,639).

With respect to claim 13, Byren discloses an edge pumping laser cavity apparatus that include a diode array and a coupling system that include two cylindrical lenses (30) and a lens duct. Byren fail to specifically disclose the two cylindrical lenses are orthogonal to each other and are parallel to fast axis and slow axis of said diode array, respectively. A coupling system including two cylindrical lenses and a lens duct, said two cylindrical lenses being placed between the diode array and the lens duct, generatrices of said two cylindrical lenses are orthogonal to each other and are parallel to fast axis and slow axis of said diode array, respectively is well taught by Zhang (col. 25, lines 5-13). It would have been obvious to one of ordinary skill in the art to including the two cylindrical lenses and a lens duct for the purpose of expanding or reducing the beam to compromise the sizes between the laser slab and the pump source.

With respect to claim 14, Byren discloses an edge pumping laser cavity apparatus without specifically disclosing the coupling system being a fiber bundle. The coupling system being a fiber bundle is well taught by Zhang (col. 11, line 1). It would have been obvious to one of ordinary skill in the art to use a fiber bundle system because it allows someone to produce a thin gain region.

### **Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Peressini (US Pat. 6,418,156) discloses a corner-pumped laser having a gain module without specifically disclosing the two reflective mirrors in the slab.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ernest Unelus whose telephone number is 571-272-0218. The examiner can normally be reached on 9:00am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Minsun Harvey can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

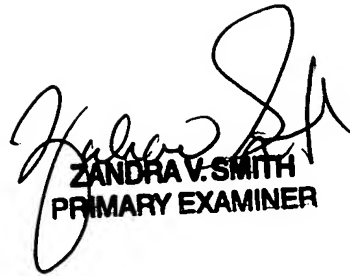
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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**ZANDRA V. SMITH**  
**PRIMARY EXAMINER**